In the Claims:

Claims **1 to 44** (Canceled).

45. (New) A method for controlling, in closed loop fashion, the operation of an internal combustion engine including engine cylinders, said method comprising the following steps:

a) sampling an engine speed signal,

b) applying a Hartley-transformation to said engine speed signal for transforming said engine speed signal into an angular frequency range,

c) analyzing said angular frequency range for producing individual angular frequency orders representing phase information and amplitude information,

d) performing a cylinder classification based on said phase information and said amplitude information by first comparing said phase information with a given reference phase value and by second comparing said amplitude information with a given first amplitude threshold value, said first comparing and said second comparing yielding individual cylinder informations for each cylinder of said engine cylinders,

e) processing said individual cylinder informations for identifying, based on said first phase comparing, any cylinder which is causing an uneven running of said internal combustion engine for further identifying, also based on said first phase comparing, a fuel adjustment direction for each individual cylinder

including said cylinder causing said uneven running, and for determining, based on said second amplitude comparing, an injection fuel quantity required for correcting said uneven running of said internal combustion engine,

f) generating in response to said processing a closed loop control signal and applying said closed loop control signal to an engine controller for correcting said uneven running of said internal combustion engine,

g) detecting a misfiring of any one of said engine cylinders by further comparing said amplitude information with a respective second given amplitude threshold value to provide information for concluding whether said uneven running is caused by said misfiring when said amplitude information exceeds said respective second given amplitude threshold value,

h) detecting an actual power output of said internal combustion engine,

i) comparing said actual power output with a rated power output of said internal combustion engine to provide a reduced power output information,

j) modifying said closed loop control signal in response to said reduced power output information, and

k) applying said modified closed loop control signal to said engine controller for controlling a fuel injection to all said engine cylinders for correcting

said actual power output with reference to said rated power output.

46. (New) The method of claim 45, further comprising assuring that operating parameters of said internal combustion engine differ insignificantly from each other at a beginning and at an end of said sampling of said engine speed signal, performing said sampling so that at least two sequential speed signal segments are sampled, and forming a mean value of said at least two sequential speed signal segments.

47. (New) The method of claim 46, wherein said forming of a mean value is performed to obtain an arithmetic mean value.

48. (New) The method of claim 45, further comprising correcting any one of said individual angular frequency orders and said given reference phase value by performing the following substeps: temporarily stopping any fuel injection to said internal combustion engine to cause a towed operation, and performing said correcting as a towed correction for eliminating any parasitic effects from any one of said individual angular frequency orders and said given reference phase value.

49. (New) The method of claim 45, further comprising performing said step (g) of detecting said misfiring by selecting out of said individual angular frequency orders low frequency

individual angular frequency orders and deriving said amplitude information from said low frequency individual angular orders for said comparing to determine a misfiring cylinder.

50. (New) The method of claim 45, further comprising performing the following substeps for said detecting of said misfiring of any one of said engine cylinders, providing speed and load dependent reference phases, combining said speed and load dependent reference phases to form a calibration factor, correlating said speed and load dependent reference phases to respective measured phases of said individual angular frequency orders for designating one of said engine cylinders as a first cylinder, and identifying said misfiring cylinder by taking into account said speed and load dependent reference phases, said calibration factor, knowledge of which cylinder is said first cylinder and that said amplitude information has exceeded said respective second given amplitude threshold value of step (g).

51. (New) The method of claim 50, wherein said individual angular frequency orders representing phase and amplitude information include at least an 0.5th order and a 1.0st order, and further comprising correlating said speed and load dependent reference phases to measured phases of said 0.5th order and said 1.0st order, so that a speed and load dependent reference phase of the 0.5th order that is

closest to the measured phase of the 0.5th order designates said first cylinder.

52. (New) The method of claim 45, further comprising establishing said rated power output by taking respective amplitude measurements from a reference engine, storing said amplitude measurements as a function of speed in a memory to provide said rated power output for use in said comparing in said step (i).

53. (New) An apparatus for controlling, in a closed loop control, the operation of an internal combustion engine, by performing the method of claim 45 said apparatus comprising: a speed signal sampling sensor (3) for generating an engine speed signal, a frequency analyzer (5) having an input for receiving said engine speed signal for performing a Hartley-transformation on said engine speed signal thereby converting said engine speed signal into an angular frequency range, said frequency analyzer (5) producing from said angular frequency range individual angular frequency orders, a cylinder classifier (7) having an input connected to an output of said frequency analyzer (5), and a controller (8) having an input connected to an output of said cylinder classifier for receiving an input signal from said cylinder classifier for generating a closed loop control signal, said controller (8) having an output connected to said internal combustion engine for said closed loop control, wherein said signal sampler

sensor (3), said frequency analyzer (5) and said cylinder classifier (7) are adapted for detecting a misfiring cylinder of said internal combustion engine, and wherein said signal sampler sensor (3), said frequency analyzer (5), said cylinder classifier (7) and said controller (8) are further adapted for generating closed loop control signals for said internal combustion engine for tracking any one of an engine torque and an engine power output.

54. (New) The apparatus of claim 53, further comprising a computer (4) operatively interposed between said signal sampler sensor (3) and said frequency analyzer (5) for calculating an arithmetic mean value of a plurality of said individual angular frequency orders.

55. (New) The apparatus of claim 53, further comprising a frequency corrector (6) operatively interposed between said frequency analyzer (5) and said cylinder classifier (7) for correcting said individual angular frequency orders.

56. (New) The apparatus of claim 53, wherein said cylinder classifier (7) comprises a generator (71) for generating reference phases, a calibrator (72) for calibrating said reference phases, and a selector (73) for selecting a reference phase, said cylinder classifier (7) further comprising means (74) for determining weighting factors, means (75) for determining any one of primary and secondary causers of any one of a disturbance and a deviation, and

means (76) for generating qualitative fuel injection adjustment control signals for adjusting a fuel supply for said internal combustion engine, said generating of said fuel injection adjustment control signals taking into account any one of qualitative and quantitative parameters.

57. (New) The apparatus of claim 53, wherein said controller (8) comprises any one of an I-control circuit and a PI-control circuit.

[RESPONSE CONTINUES ON NEXT PAGE]